
The Evaluation of the National Long Term Care Demonstration

6. The Effect of Channeling on Informal Caregiving

Jon B. Christianson

Publicly funded programs that increase the use of formal community-based care by the elderly could cause less reliance on informal care. The effect of channeling on informal caregiving was examined using data collected from frail elderly and from their primary caregivers. The findings suggest some withdrawal from caregiving on the part of neighbors and friends during the demonstration. Overall, however, these reductions were not large relative to the increased use of formal community-based services.

Much of the care of the functionally impaired elderly is provided on an informal basis by family or friends. As noted in the first article (Carcagno and Kemper), one of the objectives of channeling was to maintain the level of informal care given to clients. In principle, informal care could increase or decrease under channeling. To the extent that channeling's additional services and case manager support enabled caregivers to continue giving care longer—thereby allowing clients to postpone entering a nursing home—informal caregiving would increase in the aggregate. But to the extent that channeling's services simply substituted for informal care provided to persons who would

This article summarizes the author's more detailed analysis, in *Channeling Effects on Informal Care*, Channeling Evaluation Report No. 85-12, Mathematica Policy Research, 1986. Jon B. Christianson, Ph.D. is Professor in the Division of Health Services Research and Policy, School of Public Health, University of Minnesota. Address correspondence to Jon B. Christianson, Ph.D., Division of Health Services Research and Policy, University of Minnesota, 420 Delaware Street SE, Box 729, Minneapolis, MN 55455.

have been in the community even without channeling, informal care would be reduced. This article addresses channeling effects on receipt and provision of informal care. (For additional detail, see Christianson, 1983.) Applebaum et al. (this issue) address the effects on caregiver well-being.

BACKGROUND

The general literature on informal caregiving provides substantial evidence that informal caregivers are the primary providers of long-term care to the elderly. Over a decade ago, a national survey of persons ages 55 and over receiving care at home indicated that at least some of that care was provided in four out of every five cases by a relative (National Center for Health Statistics, 1972), and subsequent surveys of specific cities found similar results (Gurland et al., 1978; General Accounting Office, 1977). Most caregivers are children, followed by spouses and, much less frequently, friends or neighbors (General Accounting Office, 1977; Lewis et al., 1980; Morris, Sherwood, and Gutkin, 1981). Friends and neighbors appear to be the most tenuous part of informal care networks, with elderly turning to them for assistance primarily when family members are not available (Stoller and Earl, 1983). Elderly males are most likely to receive care from their spouses, while elderly females rely predominantly on children (usually female) (Shanas, 1979). Informal caregivers provide a wide variety of care ranging from nursing to transportation, but personal care and housekeeping are provided most frequently (Dunlop, 1980; Frankfather, Smith, and Caro, 1981; Cantor, 1980; Treas, 1977; Branch and Jette, 1983; and Horowitz and Dobrof, 1982).

Given the extensive reliance by the elderly on informal caregiving, as documented in the literature (see Horowitz and Dobrof, 1982, and Stephens and Christianson, 1986, for additional references), it is important to examine the impact of the channeling demonstration on informally provided services. As the Health Care Financing Administration observed in its discussion paper on long-term care, "... little is known about the extent to which families might be expected to shift care responsibilities to the public sector in response to expanded availability of public funding" (Health Care Financing Administration, 1981, p. 41). A shifting of caregiving responsibilities may be manifested in several different ways (Kuhn et al., 1982). For example, the provision of a specific service by a formal caregiver may *displace* the provision of that service entirely by an informal caregiver; it may *reduce*

the amount of that informal service provided in any given time period; it may *shift* informal caregiving to other services, and thus have an indeterminant effect on the total time spent by informal providers in caregiving activities; or it may *extend the length of time* informal caregivers are involved, thereby increasing total effort even where less care is provided in an average day or week.

There is relatively little empirical research on how informal caregivers respond to case management interventions that increase the use of formal services by the frail elderly. Analyzing a small sample ($N = 178$) of elderly who applied for publicly funded homemaker services, Lewis et al. (1980) found evidence that informal caregivers may shift into new areas of caregiving when formal services are introduced. Greene (1983), in his analysis of 124 individuals participating in a comprehensive case management program, found a substantial reduction in the number of areas in which informal care was provided, but noted that this may have reflected specialization rather than an overall reduction in caregiver effort. In a third study, Smith, Talbott, and Miller (1982) analyzed larger samples ($N = 1,884$ and $N = 1,044$) of initial assessments of participants in a community care demonstration similar to channeling. They found little evidence of less use of informal care associated with greater use of formal care. None of these studies used experimental designs to analyze the extent of reductions in informal care as a result of case management and expanded access to formal community care.

In five cases, evaluations of other community care demonstrations have examined effects on informal caregiving (Kemper, Applebaum, and Harrigan, 1987). The South Carolina LTC demonstration substantially increased receipt of informal care at home. This increase was directly associated with a reduction in nursing home placement (see Wooldridge and Schore, this issue). Because more of the treatment group remained at home, a higher proportion relied on informal care than among the control group. In the other four demonstrations that evaluated informal caregiving, nursing home use was not significantly reduced. Only one reported an effect on informal caregiving: a reduction in help with IADL tasks (such as housekeeping, meal preparation, and so forth). None found any effect on help with ADL tasks (that is, personal care).

The channeling evaluation adds to the relatively limited existing evidence concerning the impact of case management support and increased formal community-based care on informal caregiving. A wide variety of measures of formal and informal care were collected at different points in time from both frail elderly and their primary care-

givers. These measures permitted estimation of channeling's impact from a variety of perspectives. The evaluation sample size was large relative to previous studies, facilitating the detection of significant impacts.

IN-HOME INFORMAL CARE

As in Corson, Grannemann, and Holden (this issue), the examination of the impact of channeling on informal care first addresses care received in the sample member's home. As noted in Corson, Grannemann, and Holden, channeling had no statistically significant impact on the percent of sample members in the community during any interview period. Therefore, the length of time during which informal services were provided to sample members living outside of institutions was not extended by channeling. As a consequence, this article focuses on informal caregiving for sample members living in the community at each interview period.

IN-HOME CARE FROM THE INFORMAL CAREGIVING NETWORK

At least 85 percent of control group members in the community had an informal caregiver (or caregivers) providing care at 6, 12, and 18 months (Table 1). The basic case management model had no significant effect on the proportion of the elderly receiving informal care. The financial control model had a small effect. At six months, for example, the financial control model reduced the proportion receiving informal in-home care by 4.2 percentage points. At 12 months, the proportion receiving such care was reduced by 6.5 percentage points, from 85.5 percent to 79 percent. At 18 months, the treatment/control difference was about the same as at 6 months, but not statistically significant because of the smaller sample sizes.

Table 2 presents estimates of the proportion of sample members receiving informal care at six months by the relationship of the informal caregivers to the sample members. As the control group means indicate, almost half of the elderly had a child included in their informal caregiving network. About one-quarter had a spouse included. Slightly lower proportions had some other relative and/or a friend or neighbor included. The basic case management model had no effect on the proportions receiving care from any of these sources. The financial control model's effect occurred through some withdrawal of friends or neighbors—a 4.9 percentage point reduction at six months. A signifi-

Table 1: Receipt of In-Home Care from Informal Caregivers
(Percent of Sample Members in Community)

	<i>Treatment Group Mean</i>	<i>Control Group Mean</i>	<i>Treatment/Control Difference</i>
<i>Basic case management model</i>			
6 months	83.9	86.4	-2.5
12 months	84.1	84.9	-0.8
18 months	85.7	87.2	-1.5
<i>Financial control model</i>			
6 months	82.8	87.0	-4.2**
12 months	79.0	85.5	-6.5**
18 months	80.9	84.9	-4.0

Source: Christianson, 1986, Table IV.2.

Sample Sizes: basic model 1,605, 1,345, and 510 at 6, 12, and 18 months, respectively; financial model 1,767, 1,456, and 534.

Note: Estimates are for receipt of informal services during a week at 6, 12, and 18 months after randomization.

**Statistically significant at the 1 percent level.

cant reduction of similar magnitude also occurred at 12 months among friends and neighbors, and also among other relatives (not shown). No other treatment/control differences were statistically significant at any observation point.

To examine the sources of this reduction further, the impacts of channeling on the proportions of the sample with caregivers who lived in the same household and who visited to give care were estimated (Table 3). At six months, more than half the channeling eligibles in the control group had a caregiver who lived with the sample member in their network; about half had a visiting caregiver. The financial control model's effect was concentrated among visiting caregivers—a reduction of 5.1 percentage points at six months. (The reduction was smaller at 12 and 18 months, 3.9 and 3.8 percentage points, and not statistically significant.) This is consistent with the evidence that the reduction in care occurred among friends and neighbors. Additional insight into the relative importance of the decline in participation by visiting caregivers is given in Table 4, which shows the number of visits per week from visiting informal caregivers at 6, 12, and 18 months. The control group received about three visits a week from visiting informal caregivers, amounting to about nine hours of care per week (not shown). These measures of intensity indicate that visiting caregivers on average provided substantial amounts of care.

The treatment/control differences in visits per week by visiting

Table 2: Receipt of In-Home Informal Care at Six Months by Relationship of Informal Caregiver (Percent of Sample Members in Community)

	<i>Treatment Group Mean</i>	<i>Control Group Mean</i>	<i>Treatment/Control Difference</i>
<i>Basic case management model</i>			
Spouse	24.7	24.1	0.6
Child	46.3	47.7	-1.4
Sibling	8.3	7.3	1.0
Other relative	23.0	24.3	-1.3
Friend or neighbor	15.6	18.8	-3.2
<i>Financial control model</i>			
Spouse	25.0	27.0	-2.0
Child	43.5	43.4	0.1
Sibling	7.3	7.9	-0.6
Other relative	21.5	21.9	-0.4
Friend or neighbor	19.4	24.3	-4.9*

Source: Christianson, 1986, Table IV.4.

Sample Sizes: basic model, 1,605; financial model, 1,767.

Note: Percentages do not sum to 100 because some sample members received care from more than one type of caregiver. Estimates are for receipt of informal services during a week 6 months after randomization.

*Statistically significant at the 5 percent level.

Table 3: Receipt of Informal In-Home Care at Six Months by Living Arrangement of Informal Caregivers (Percent of Sample Members in Community)

	<i>Treatment Group Mean</i>	<i>Control Group Mean</i>	<i>Treatment/Control Difference</i>
<i>Basic case management model</i>			
Lives with sample member	59.6	59.6	0.0
Visits to give care	46.6	48.9	-2.3
<i>Financial control model</i>			
Lives with sample member	57.6	58.4	-0.8
Visits to give care	48.0	53.1	-5.1*

Source: Christianson, 1986, Table IV.2.

Sample Sizes: basic model, 1,605; financial model, 1,767.

Note: Estimates are for receipt of informal services during a week six months after randomization.

*Statistically significant at the 5 percent level.

Table 4: Number of Visits per Week from Informal Caregivers (to Sample Members in Community)

	<i>Treatment Group Mean</i>	<i>Control Group Mean</i>	<i>Treatment/Control Difference</i>
<i>Basic case management model</i>			
6 months	2.9	3.1	-0.2
12 months	3.0	2.9	0.1
18 months	3.2	2.4	0.8
<i>Financial control model</i>			
6 months	3.2	3.4	-0.2
12 months	2.6	3.1	-0.5
18 months	2.5	3.2	-0.7

Source: Christianson, 1986, Table IV.11 and Table IV.12.

Sample Sizes: basic model 1,605, 1,345, and 510 at 6, 12, and 18 months, respectively; financial model 1,767, 1,456, and 534.

Note: None of the treatment/control differences differs from zero at the 5 percent significance level. Estimates are for number of visits during a week at 6, 12, and 18 months after randomization.

caregivers show no evidence of reductions under the basic model; under the financial model, although the differences were negative at each observation point, none was statistically significant. Treatment/control differences in hours of care provided by visiting caregivers (not shown) also were not significant. Thus, the amount of informal care from visiting caregivers does not appear to have been substantially affected by channeling. This is consistent with the finding that the modest withdrawal of informal caregivers occurred among those least closely associated with the sample member.

Table 5 shows types of in-home informal care received from all informal caregivers at six months. The control group means indicate that the overall pattern of care is somewhat similar to the pattern for formal services (see Corson, Grannemann, and Holden, this issue). Help was received with housework/laundry/shopping by about 80 percent of sample members, meal preparation by about 70 percent, and personal care by 56 percent. Managing money and helping with chores, not surprisingly, were much more frequent for informal caregivers than for formal service providers, as was providing help taking medicine.

Under both models, treatment/control differences were generally negative. There were no large or significant differences under the basic model. However, under the financial control model, statistically significant reductions were found in the two most prevalent types of care,

Table 5: Types of Informal Help Received at Six Months
(Percent of Sample Members in Community)

	<i>Treatment Group Mean</i>	<i>Control Group Mean</i>	<i>Treatment/Control Difference</i>
<i>Basic case management model</i>			
Therapy	5.2	4.6	0.6
Other medical treatments	7.7	5.3	2.4
Help taking medicine	44.5	46.2	-1.8
Personal care	54.0	56.1	-2.1
Meal preparation	67.5	70.5	-3.0
Housework, laundry and/or shopping	76.5	78.2	-1.7
General supervision	52.0	56.4	-4.4
Chores	44.8	46.8	-2.0
Managing money	53.3	54.5	-1.2
Other	1.8	2.4	-0.6
<i>Financial control model</i>			
Therapy	5.2	5.3	-0.1
Other medical treatments	7.3	4.8	2.5*
Help taking medicine	45.2	45.7	-0.5
Personal care	53.3	56.2	-2.9
Meal preparation	64.4	69.7	-5.3**
Housework, laundry and/or shopping	74.6	80.8	-6.2**
General supervision	53.5	56.2	-2.7
Chores	32.6	34.2	-1.6
Managing money	54.6	57.2	-2.6
Other	0.8	0.8	0.0

Source: Christianson, 1986, Table IV.7 and Table IV.8

Sample Sizes: basic model, 1,605; financial model, 1,767.

Note: Estimates are for receipt of informal services during a week six months after randomization.

*Statistically significant at the 5 percent level.

**Statistically significant at the 1 percent level.

meal preparation and help with housework, laundry, or shopping. Again, these effects were relatively small. The reduction in help with housework, laundry, or shopping retained its significance at 12 but not 18 months. The reductions in assistance with meal preparation at 12 and 18 months were not significant. The only significant increase was in the (small) proportion receiving other (that is, nontherapy) medical treatments under the financial control model, but this had virtually disappeared by 12 months and did not reappear at 18 months.

IN-HOME CARE FROM THE PRIMARY CAREGIVERS

This section summarizes channeling's impacts on the types and amount of care provided by those individuals identified by the sample members as the most important, or primary, informal caregivers. Slightly more than half of these primary caregivers lived with elderly sample members. As described in the technical report (Christianson, 1986), the channeling evaluation used a baseline and two follow-up interviews with primary caregivers at six-month intervals to gather additional detail on patterns of informal care.

In designing the sample member survey, it was felt that respondents would have difficulty in recalling the frequency with which specific types of informal care were provided by individual caregivers living with the sample member, as well as the hours of care they provided. Therefore, data on intensity of caregiving were not collected in the sample member survey for live-in informal caregivers. The primary caregiver survey partially remedies this problem, since it collects data on the frequency and hours of care provided by *all* primary caregivers, whether they live with the sample member or visit to provide care. Information on hours of informal care provided by live-in informal caregivers other than the primary caregiver were not collected through follow-up interviews but, according to baseline caregiver data, this amounts to only 11.5 percent of all hours of informal care.

Table 6 shows estimates of hours of care per day reported by primary informal caregivers. The primary caregivers of control group members provided more than two hours of care a day (excluding socializing) in the basic case management sites, and nearly three hours of care a day in the financial control sites. Neither the basic case management nor the financial control model affected these amounts of care at 6 or 12 months. Thus, primary caregivers maintained their caregiving even in the presence of substantially expanded formal services under the financial control model.

With respect to the types of in-home care provided by primary caregivers, there is some suggestion that channeling induced these caregivers to concentrate in certain areas. First, channeling under both models increased the proportion of caregivers helping to arrange services or benefits—for example, under the basic model, from 46 to 56 percent at six months (not shown). Second, at 12 months (though not at 6 months), the financial model also increased the proportion reporting that they helped with cleaning up after bowel or bladder accidents and with feeding.

Table 6: Hours of Care per Day from Primary Informal Caregiver (to Sample Members in Community)

	<i>Treatment Group Mean</i>	<i>Control Group Mean</i>	<i>Treatment/Control Difference</i>
<i>Basic case management model</i>			
6 months	2.4	2.5	-0.1
12 months	1.9	2.2	-0.3
<i>Financial control model</i>			
6 months	3.2	3.0	0.2
12 months	3.1	2.7	0.4

Source: Christianson, 1986, Table V.8.

Sample Sizes: basic model, 427 and 353 for 6 and 12 months, respectively; financial model, 514 and 409.

Note: None of the treatment/control differences differs from zero at the 5 percent significance level. Estimates are for an average week during the month prior to the interviews.

OTHER INFORMAL CARE FROM THE INFORMAL CAREGIVING NETWORK

Delivery of prepared meals and transportation were the major types of informal care other than in-home care received by elderly sample members from the full caregiving network. The control group means in Table 7 indicate that 10-16 percent of channeling eligibles received prepared meals from informal caregivers, while 16-24 percent received transportation help during the week prior to the sample member interview.

The basic case management model once again had no effect on either type of care at any observation point, but the financial control model significantly reduced the proportion receiving prepared meals at both 6 and 12 months by about a quarter (4 percentage points). The financial control model also reduced informal help with transportation at six months, though not thereafter. These effects are consistent with the slight withdrawal of visiting caregivers noted earlier.

DISCUSSION

To clarify the degree to which substitution may have occurred, channeling's effects on informal care (for the caregiver network as a whole) are compared to increases in formal care in Table 8. The extent to

Table 7: Receipt of Informally Provided Prepared Meals and Transportation (Percent of Sample Members in Community)

	<i>Treatment Group Mean</i>	<i>Control Group Mean</i>	<i>Treatment/Control Difference</i>
<i>Prepared Meals</i>			
<i>Basic case management model</i>			
6 months	12.2	13.9	-1.7
12 months	12.1	12.5	-0.4
18 months	12.2	9.5	2.7
<i>Financial control model</i>			
6 months	12.0	15.8	-3.8*
12 months	10.3	14.3	-4.0*
18 months	9.4	13.4	-4.0
<i>Transportation</i>			
<i>Basic case management model</i>			
6 months	23.2	20.7	2.5
12 months	23.2	23.7	-0.5
18 months	19.9	22.3	-2.4
<i>Financial control model</i>			
6 months	18.8	24.0	-5.2*
12 months	17.5	18.5	-1.0
18 months	18.7	16.7	2.0

Source: Christianson, 1986, Table IV.15.

Sample Sizes: Basic model 1,605, 1,345, and 510 at 6, 12, and 18 months, respectively; financial model 1,767, 1,456, and 534.

Note: Estimates are for receipt of informal services during a week at 6, 12, and 18 months after randomization.

*Statistically significant at the 5 percent level.

which the impacts are significant and in opposite directions provides an indication of whether informal caregiving was reduced due to the channeling demonstration's ability to increase formal care of the same type.

As described earlier in this article, the basic model had no significant impacts on informal care, even in the areas where the channeling intervention brought about substantial increased use of formal services (meal preparation, housework, laundry, or shopping). However, the financial control model apparently did lead to some significant reductions in informal caregiving. For example, the financial control model increased the proportion receiving any formal in-home care by 21.8 percentage points with a corresponding reduction of 4.2 percentage points in the proportion receiving any informal in-home care. This relatively aggregate measure suggests that a 5 percentage point increase in percent receiving in-home formal services was associated

Table 8: Comparison of Effects on Informal and Formal Care at Six Months (Treatment/Control Difference in Percent of Elderly Sample in Community Receiving Care)

	<i>Informal Care</i>	<i>Formal Care</i>
<i>Basic case management model</i>		
<i>In-home care</i>		
Therapy	0.6	1.4
Other medical treatments	2.3	2.4
Help taking medicine	-1.8	0.0
Personal care	-2.1	7.9**
Meal preparation	-3.0	10.0**
Housework, laundry and/or shopping	-1.7	11.5**
General supervision	-4.4	4.8*
Chores	-2.0	1.5
Managing money	-1.2	0.4
Other	-0.6	0.6
Any in-home care	-2.5	11.4**
<i>Delivery of prepared meals</i>	-1.7	3.9
<i>Transportation</i>	2.5	-0.6
<i>Financial control model</i>		
<i>In-home care</i>		
Therapy	-0.1	5.0**
Other medical treatments	2.5*	6.5**
Help taking medicine	-0.5	7.3**
Personal care	-2.9	25.3**
Meal preparation	-5.3**	21.5**
Housework, laundry and/or shopping	-6.2**	24.3**
General supervision	-2.7	13.0**
Chores	-1.6	4.0*
Managing money	-2.6	0.7
Other	0.0	0.2
Any in-home care	-4.2**	21.8**
<i>Delivery of prepared meals</i>	-3.8*	11.9**
<i>Transportation</i>	-5.2*	6.6**

Source: Tables 3 and 5 of this article and Tables 1, 5, and 7 of Corson, Grannemann, and Holden (this issue).

Sample Sizes: Basic model 1,605 and 1,630 for informal and formal care, respectively; financial model 1,767 and 1,785.

Note: Estimates are for receipt of formal and informal services during a week six months after randomization.

*Statistically significant at the 5 percent level.

**Statistically significant at the 1 percent level.

with a 1 percentage point decrease in the percent receiving informal care. Examination of the services where the effects were concentrated indicates similar orders of magnitude. The financial control model intervention was characterized by a 24.3 percentage point increase in the proportion of sample members receiving formal housework/laundry/shopping services at six months, and this was associated with a 6.2 percentage point reduction in informal care of the same type. For meal preparation, there was an increase of 21.5 percentage points associated with a decrease of 5 percentage points. The reduction in informally provided personal care was less; a 25 percentage point increase in formal services was associated with a 3 percentage point decrease (not significant) in informal care.

For delivered meals and transportation under the financial control model, a stronger relationship between the use of formal and informal care was present. The ratio of increases in formal services to decreases in informal services was 2 or 3 to 1, rather than the 4 or 5 to 1 ratio observed for other services and overall.

As noted earlier in this article, these reductions in informal caregiving under the financial control model were not due to withdrawal of primary caregivers (the persons designated by the client as providing most of their informal care, whether living with the client or not). They apparently occurred mainly through withdrawal of some individuals who visited to provide care, most likely friends and neighbors. Moreover, the treatment/control differences in both the number of visits and hours of informal care given by visiting caregivers were small and not statistically significant. At 12 and 18 months, there are fewer combinations of significant impacts (not shown), indicating that substitution may have diminished in importance as the demonstration progressed. These results also imply that the total amount of community care from formal providers and informal caregivers combined went up as a result of channeling. The reductions in informal care under the financial model were far too small to offset the increases in formally provided care that were part of the intervention.

With the available data, it is not possible to determine precisely why relatively modest reductions in informal caregiving were observed in the channeling demonstration despite an intervention that included much greater use of formal, community-based long-term care by the treatment group. However, the results of the channeling demonstration do demonstrate that, at least under some conditions, expansion of community care benefits does not necessarily lead to wholesale reductions in the activities of informal caregivers.

APPENDIX

DEVELOPMENT OF PRIMARY CAREGIVER SURVEY

As described in the first article (Carcagno and Kemper), a single, primary caregiver was identified at the baseline interview of a special subsample of the elderly research sample. This individual was the person designated by the elderly sample member as the friend or family member who helped the most to take care of him or her, or of his or her affairs, or to do things around the house. Friends or family members whose only assistance was to provide emotional support or to give the sample member money were excluded from the primary caregiver survey. Also, in order to be included, caregivers either had to be helping regularly (at least once a month) at the time of the interview during which the caregiver was identified, or to have been helping regularly in the month prior to that interview or, if the elderly sample member had been institutionalized, in the month prior to institutionalization. The individuals who met these requirements formed the primary caregiver sample and, after administration of an initial baseline interview, were interviewed 6 and 12 months later. Completed caregiver baseline interviews were obtained for 1,940 individuals, or 87.0 percent of designated caregivers found to be appropriate; only 46 of the caregivers first named by the elderly sample members refused to be interviewed. At 6 and 12 months, 1,631 and 1,100 completed interviews were obtained. If a sample member was deceased or in an institution at 6 months, no 12-month interview with the individual designated at baseline as the primary informal caregiver was attempted. Also, if the sample member was living in the community but the primary caregiver was no longer providing care at 6 months, no 12-month caregiver interview was attempted.

Primary informal caregivers were asked whether they currently provided each of 16 specific types of informal care. Six of these types of care are essentially subcategories of the more general category of personal care used in the analysis of sample member responses. General supervision of personal care tasks, medical care tasks, and administration of medication — by staying in the same room to offer assistance and to ensure that these tasks were properly carried out — also counted as caregiving. In these responses, primary caregivers were asked to include only care provided regularly (defined as on a routine basis at least once a month). Finally, caregivers were asked if they socialized or

kept company with care recipients, independent of actually providing care. These responses are analyzed under the separate heading of socialization with the sample member.

In the primary caregiver survey, caregivers estimated how many hours, on an average day when helping, they spent providing personal care, medical care, or help in taking medicine. It was assumed that all of this time spent caregiving was attributable to the sample member's disability and would be unnecessary otherwise. These responses were then used in conjunction with estimates of the proportion of days in the week during which the caregiver gave any help to construct a measure of average hours per day.

A somewhat different approach was adopted in estimating the hours spent by caregivers on other tasks—including meal preparation, laundry or housework or shopping, chores, transportation, and money management. First, the primary caregiver was asked to estimate the amount of time spent on all of these tasks combined, on an average day when helping. Then the caregiver was asked if any of this time was extra time, with "extra" defined as time over and above the time that would be required if the sample member were not ill or disabled.

The resulting estimate was then converted to average hours per day. This approach was used in an attempt to identify the time spent in these caregiving tasks that was actually attributable to the sample member's disability and would be unnecessary otherwise. Clearly, however, the concept of extra time is a difficult one, particularly for caregivers living with sample members. The resulting time estimate is most appropriately interpreted as the caregiver's *perception* of extra time, rather than an objectively accurate measure of it. Regardless of the approach adopted to estimate caregiver time (total or extra), the estimated treatment/control differences should be the same, unless the estimates of extra time differ systematically between treatment and control groups.

STRENGTHS AND LIMITATIONS OF THE PRIMARY CAREGIVER DATA

When interpreting the impacts of channeling on informal caregiving, it is important to be aware of the strengths and limitations of the primary caregiver versus sample member data sets. The discussion that follows underscores the important survey differences.

*Limitations of Primary Caregiver Data
Relative to Sample Member Data*

1. The analysis of the caregiver responses is based on a smaller sample size than the analysis of sample member responses. Other things equal, this means that a difference in channeling impacts that is statistically significant using the sample member data could be insignificant using the caregiver data, even when the estimated magnitude of the impact is similar for both data sets.
2. There are no 18-month follow-up data in the caregiver survey (although such data were collected from sample members). This lack means that channeling's impact on the informal caregiving activities of primary caregivers that takes longer than a year to be fully realized cannot be detected in the analysis.
3. The caregiver sample excluded primary caregivers for sample members screened at the beginning and the end of the demonstration. For this reason, the sample may not be exactly representative of primary caregivers for all the sample members. This possibility cannot be tested directly since, by definition, no data are available for primary caregivers excluded from the survey. However, a comparison of the characteristics of sample members who formed the basis for the caregiver survey with the characteristics of all other sample members found few significant differences between these groups.

*Strengths of Primary Caregiver Data
Relative to Sample Member Data*

1. The use of the caregiver instead of the sample member as a respondent arguably could increase the accuracy of the data with respect to receipt of care. The sample member may not always be aware of all the different types of informal care provided or may not regard some types of activities (for instance, general supervision) as informally provided care. Or, the sample member may consciously underreport the amount of available informal care with the intent of maximizing the formal resources supplied by the channeling agency. Using the primary caregiver as the survey respondent can avoid some of these potential biases but can introduce others. For example, the caregivers may also underreport the avail-

ability of informal care in the hope of securing a greater amount of formal assistance. Or the caregiver may exaggerate caregiving activities as a form of self-promotion or to influence case managers to provide more respite-type services. The relative direction of bias in the responses of caregivers and sample members is not clear and probably could not be resolved even with actual observation of care (since that process might introduce its own types of bias). But biased reporting aside, it seems reasonable that caregivers would assess more accurately their level of caregiving than would sample members.

2. The caregiver survey offers more detailed information regarding the types and amounts of informal care provided to sample members. With respect to types of care, more detailed information is collected regarding personal care and the arranging of services or benefits, and a distinction is made between general supervision (a caregiving activity) and socialization (where no care is provided). With respect to amount of care, data on hours of informal care provided are collected for all primary caregivers, not just for visiting caregivers as in the sample member survey. This more detailed data collection was possible because there were no competing demands from other areas of the evaluation, as was the case in the design of the sample member survey.
3. The caregiver survey contains data on the services provided by primary informal caregivers to all institutionalized sample members at six months. Because of time limitations and concern for respondent burden, the sample member survey by design did not include questions on the informal care received by institutionalized sample members. Thus, the caregiver survey, where such data are present, can provide a more nearly complete picture of channeling's overall impact in this respect.

As discussion of the limitations and strengths of the primary caregiver survey data suggests, this data source is not unambiguously preferable to the sample member data in assessing channeling's impact on informal care. However, the strengths of the primary caregiver survey data do add breadth and depth to the analysis, and they do balance limitations of the sample member data set in areas where its limitations are greatest.

REFERENCES

- Applebaum, R. A., et al. The evaluation of the National Long Term Care Demonstration: 9. The effect of channeling on mortality, functioning, and well-being. *Health Services Research* 23(1) (this issue).
- Branch, L. G., and A. M. Jette. Elders' use of informal long-term care assistance. *The Gerontologist* 23(1):51-56, 1983.
- Cantor, M. Caring for the Frail Elderly: Impact on Family, Friends and Neighbors. Paper presented at the 33rd Annual Meeting of the Gerontological Society of America, San Diego, CA, November 24, 1980.
- Carcagno, G. J., and P. Kemper. The evaluation of the National Long Term Care Demonstration: 1. An overview of the channeling demonstration and its evaluation. *Health Services Research* 23(1) (this issue).
- Christianson, J. B. *Channeling Effects on Informal Care*. Channeling Evaluation Report No. 85-12. Princeton, NJ: Mathematica Policy Research, May 1986.
- Corson, W., T. Grannemann, and N. Holden. The evaluation of the National Long Term Care Demonstration: 5. Formal community services under channeling. *Health Services Research* 23(1) (this issue).
- Dunlop, B. Expanded home-based care for the impaired elderly: Solution or pipe dream? *American Journal of Public Health* 70(5):514-18, 1980.
- Frankfather, K. L., M. J. Smith, and F. G. Caro. *Family Care of the Elderly*. Lexington, MA: D. C. Heath, 1981.
- General Accounting Office. *The Well-Being of Older People in Cleveland, Ohio*. Publication No. HRD 77-70, Washington, DC, April 19, 1977.
- Greene, V. L. Substitution between formally and informally provided care for the impaired elderly in the community. *Medical Care* 21(6):609-19, 1983.
- Gurland, B., et al. Personal Time Dependency in the Elderly of New York City: Findings from the U.S.-U.K. Cross National Geriatric Community Study. In Community Council of Greater New York. *Dependency of the Elderly of New York City: Report of a Research Utilization Workshop*. New York, October 1978.
- Health Care Financing Administration. *Long Term Care: Background and Future Directions*. Discussion Paper (HCFA)81-20047. Washington, DC: Government Printing Office, January 1981.
- Horowitz, A., and R. Dobrof. The Role of Families of Providing Long Term Care to the Frail and Chronically Ill Elderly Living in the Community. Final Report. Grant from the Health Care Financing Administration, 1982.
- Kemper, P., R. A. Applebaum, and M. Harrigan. Community care demonstrations: What have we learned? *Health Care Financing Review* 8(4):87-100, 1987.
- Kuhn, D., et al. In-Home Services and the Contribution of Kin: Substitution Effects in Home Care Programs for the Elderly. Urban Systems Research and Engineering, Inc., Cambridge, MA, May 31, 1982.
- Lewis, M. S., et al. The Extent to Which Informal and Formal Supports Interact to Maintain the Older People in the Community. Paper presented at the 33rd Annual Meeting of the Gerontological Society of America, San Diego, CA, November 24, 1980.

- Morris, J., S. Sherwood, and C. Gutkin. Meeting the Needs of the Impaired Elderly: The Power and Resiliency of the Informal Support System. Final Report. Grant from the Administration on Aging, Boston, MA, November 1981.
- National Center for Health Statistics. *Home Care For Persons 55 and Over*. Vital Health Statistics, Series 10, No. 73. Department of Health, Education, and Welfare, Publication No. (HSM)72-1012, 1972.
- Shanas, E. The family as a social support system in old age. *The Gerontologist* 19(2):169-74, 1979.
- Stephens, S. A., and J. B. Christianson. *Informal Care of the Elderly*. Lexington, MA: D. C. Heath, 1986.
- Stoller, E., and L. Earl. Help with activities of everyday life: Sources of support for noninstitutionalized elderly. *The Gerontologist* 23(1):64-70, 1983.
- Talbott, M., S. A. Smith, and L. Miller. Informal Instrumental Support: Two Samples of California's Frail, Low-Income Elderly. University of California, Multipurpose Senior Services Project Evaluation, Berkeley, July 30, 1982.
- Treas, J. Family support systems for the aged: Some social and demographic considerations. *The Gerontologist* 17(6):486-91, 1977.
- Wooldridge, J., and J. Schore. The evaluation of the National Long Term Care Demonstration: 7. The effect of channeling on the use of nursing homes, hospitals, and other medical services. *Health Services Research* 23(1) (this issue).